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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,339	12/12/2003	Howard Greg King	5101	3782
22896	7590	12/07/2005	EXAMINER	
MILA KASAN, PATENT DEPT. APPLIED BIOSYSTEMS 850 LINCOLN CENTRE DRIVE FOSTER CITY, CA 94404			HANNAHER, CONSTANTINE	
			ART UNIT	PAPER NUMBER
			2884	

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/735,339	KING, HOWARD GREG	
	Examiner	Art Unit	
	Constantine Hannaher	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13-19 and 22-30 is/are rejected.
- 7) ☒ Claim(s) 10-12, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20040311</u> . | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION****Election/Restrictions**

1. The combination of claim 1 and the subcombination of claim 18 are distinct since parallel is not equivalent to flat (see page 5 of the specification) and the subcombination need not be used with arrays, but no requirement for restriction is made at this time.

**Claim Objections**

2. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The specification and views show that positioning in strips and positioning in a staggered array are alternatives, therefore, the positioning of claim 12 does not include the positioning of claim 11.

**Claim Rejections - 35 USC § 112**

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 8 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While the specification literally describes an excitation filter with 80% efficiency in rejecting wavelengths greater than 535 nanometer *and* with 80% efficiency in rejecting wavelengths less than 535 nanometer (see page 12) one skilled in the art is not enabled to use a fluorescent detection system in which at most 20% of the power of the array

of excitation light sources is permitted to reach the samples. The balance of the claims is rejected on the basis of their dependence.

#### **Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6 and 13-16 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Nordman *et al.* (US20030030804A1).

With respect to independent claim 1, Nordman *et al.* discloses a fluorescent detection system (Fig. 7) comprising an array of light sources 50, and array of detectors 32, and a filter assembly comprising an excitation filter 18 positioned as recited and an emission filter 51 positioned as recited in view of the array of samples 58, wherein the excitation filter 18 and the emission filter 51 are positioned substantially parallel to each other (paragraph [0074]).

With respect to dependent claim 2, each sample 58 in the system of Nordman *et al.* corresponds to one excitation light source 50 and two detectors 32.

With respect to dependent claim 3, each sample 58 in the system of Nordman *et al.* corresponds to two excitation light sources 50, 52 and one detector 32.

With respect to dependent claim 4, the two excitation light sources **50, 52** in the system of Nordman *et al.* are narrow band sources (paragraph [0056]) and the one detector **32** is a broad band detector (paragraph [0050]).

With respect to dependent claim 5, the excitation filter **18** in the system of Nordman *et al.* substantially rejects wavelengths outside those of the narrow band sources (paragraph [0047]).

With respect to dependent claim 6, the emission filter **51** in the system of Nordman *et al.* substantially rejects wavelengths of the narrow band sources (paragraph [0059]).

With respect to dependent claim 13, the system of Nordman *et al.* further comprises an array of focusing lenses (*e.g.*, **30**, see paragraph [0076]).

With respect to dependent claim 14, each focusing lens **30** in the system of Nordman *et al.* corresponds to each sample **58**.

With respect to dependent claim 15, a first set **19** of focusing lenses corresponds to the excitation light from source **50** and a second set **30** of focusing lenses corresponds to the fluorescent light from sample **58**.

With respect to dependent claim 16, the system of Nordman *et al.* further comprises an array of collimating lenses (*e.g.*, **24**, see paragraph [0076]).

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bruno *et al.* (US005757014A).

With respect to independent claim 1, Bruno *et al.* discloses a fluorescent detection system (Fig. 6) comprising an array of excitation light sources **10**, an array of detectors **13**, and a filter assembly comprising an excitation filter **15** positioned for excitation light from the excitation sources and an emission filter **16** positioned for fluorescent light from an array of samples **4** (Fig. 7), wherein

the excitation filter **15** and the emission filter **16** are positioned substantially parallel to each other (Fig. 5).

8. Claims 18, 22-26, 29, and 30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Marsoner *et al.* (US005157262A).

With respect to independent claim 18, Marsoner *et al.* discloses a filter assembly (Fig. 1) comprising an excitation filter **10** adapted to condition excitation light **11** from an excitation light source and an emission filter **8** adapted to condition fluorescent light **12** from a sample **7** wherein the excitation filter **10** and the emission filter **8** are formed as alternating portions of the filter assembly, and wherein the filter assembly is substantially flat.

With respect to dependent claim 22, the excitation filter **10** and the emission filter **8** in the assembly of Marsoner *et al.* are part of one substrate **1**.

With respect to dependent claim 23, the excitation filter **10** in the assembly of Marsoner *et al.* comprises a coating on the substrate **1** (column 9, lines 26-28).

With respect to dependent claim 24, the emission filter **8** in the assembly of Marsoner *et al.* comprises a coating on the substrate **1** (column 9, line 36).

With respect to dependent claim 25, the substrate **1** of the assembly of Marsoner *et al.* comprises a first layer **10** configured to provide the excitation filter and a second layer **8** configured to provide the emission filter.

With respect to independent claim 26, Marsoner *et al.* discloses a method of fluorescent detection corresponding to the illustrated flat filter assembly provided (Fig. 5) comprising an excitation filter **8'** and an emission filter **8** which would comprise the steps of providing excitation light (from source **2**), positioning the excitation light to correspond with the excitation filter **8'**, conditioning the excitation light with the excitation filter, providing a sample **7** adapted to generate

fluorescent light when excited by the (conditioned) excitation light **11**, positioning the fluorescent light **12** to correspond with the emission filter **8**, conditioning the fluorescent light with the emission filter, and detecting the conditioned fluorescent light (with detector **3**).

With respect to dependent claim 29, the positioning of the excitation light **11** in the method of Marsoner *et al.* comprises aligning an array **7, 7'** of the samples (column 12, lines 13-18) with an array of excitation light sources (*e.g.*, Fig. **11**).

With respect to dependent claim 30, the positioning of the fluorescent light **12** in the method of Marsoner *et al.* comprises aligning an array **7, 7'** of the samples (column 12, lines 13-18) with an array of detectors (*e.g.*, Fig. **11**).

9. Claims 18, 19, and 26 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Yamada *et al.* (US006603126B2).

With respect to independent claim 18, Yamada *et al.* discloses a filter assembly (Fig. **3**) comprising an excitation filter **3** adapted to condition excitation light from an excitation light source **11a** and an emission filter **4** adapted to condition fluorescent light from a sample (paper sheet), wherein the excitation filter **3** and the emission filter **4** are formed as alternating portions of the filter assembly, and wherein the filter assembly is substantially flat.

With respect to dependent claim 19, the excitation filter **3** and the emission filter **4** in the assembly of Yamada *et al.* are separate structures coupled together (column 4, lines 35-53).

With respect to independent claim 26, Yamada *et al.* discloses a method of fluorescent detection corresponding to the illustrated flat filter assembly provided (Fig. **3**) comprising an excitation filter **3** and an emission filter **4** which would comprise the steps of providing excitation light (from source **1a**), positioning the excitation light to correspond with the excitation filter **3**, conditioning the excitation light with the excitation filter, providing a sample (paper sheet) adapted

to generate fluorescent light when excited by the (conditioned) excitation light, positioning the fluorescent light to correspond with the emission filter 4, conditioning the fluorescent light with the emission filter, and detecting the conditioned fluorescent light (with detector 2a).

10. Claims 18, 19, and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chance (US003811777A).

With respect to independent claim 18, Chance discloses a filter assembly 13 (Fig. 2) comprising an excitation filter 14 adapted to condition excitation light from an excitation light source 12 (Fig. 1) and an emission filter 16 adapted to condition fluorescent light from a sample 30, wherein the excitation filter and the emission filter are formed as alternating portions of the filter assembly, and wherein the filter assembly is substantially flat.

With respect to dependent claim 19, the excitation filter and the emission filter are separate structures coupled together (Fig. 2).

With respect to independent claim 26, Chance discloses a method of fluorescent detection corresponding to the illustrated flat filter assembly 13 provided (Fig. 1) comprising an excitation filter 14 and an emission filter 16 which would comprise the steps of providing excitation light (from source 12), positioning the excitation light to correspond with the excitation filter 14 using lenses 21, 22, conditioning the excitation light with the excitation filter, providing a sample 30 adapted to generate fluorescent light when excited by the (conditioned) excitation light, positioning the fluorescent light to correspond with the emission filter 16 using light pipe arm 26, conditioning the fluorescent light with the emission filter, and detecting the conditioned fluorescent light (with detector 20).



**Claim Rejections - 35 USC § 103**

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nordman *et al.* (US20030030804A1).

With respect to dependent claims 7-9, the selection of the filters in the system of Nordman *et al.* is a function of the markers (in samples 58) themselves (paragraph [0059]). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the properties of the excitation filter 18 and the emission filter 51 to achieve the desired performance in excitation of the markers of samples 58 and distinguishing between fluorescence peaks. In the absence of an unexpected result, the claim limitations of a particular bound to the wavelength passband and of a particular efficiency of rejection and a particular distance between passbands are considered to be choices within the ordinary skill in the art encompassed by the teachings of Nordman *et al.*

13. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marsoner *et al.* (US005157262A).

With respect to dependent claims 27 and 28, although Marsoner *et al.* does not describe the operation of the excitation filter and of the emission filter corresponding to the conditioning steps recited, the description of "better separation of the excitation light from the fluorescent light" (column 6, lines 61-62) would have made it obvious to one of ordinary skill in the art at the time the

invention was made that the excitation filter rejected wavelengths in a wavelength range of the fluorescent light 12 and that the emission filter rejected wavelengths in a wavelength range of the excitation light 11.

14. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada *et al.* (US006603126B2).

With respect to dependent claims 27 and 28, although Yamada *et al.* does not describe the operation of the excitation filter and of the emission filter corresponding to the conditioning steps recited, the description of the filters at column 4, lines 35-53 would have made it obvious to one of ordinary skill in the art at the time the invention was made that the excitation filter rejected wavelengths in a wavelength range of the fluorescent light and that the emission filter rejected wavelengths in a wavelength range of the excitation light.

15. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chance (US003811777A).

With respect to dependent claims 27 and 28, although Chance does not describe the operation of the excitation filter and of the emission filter corresponding to the conditioning steps recited, the description of the filters at column 3, lines 63-66) would have made it obvious to one of ordinary skill in the art at the time the invention was made that the excitation filter rejected wavelengths in a wavelength range of the fluorescent light and that the emission filter rejected wavelengths in a wavelength range of the excitation light.

**Response to Submission(s)**

16. This application has been published as US20040178357A1 on September 16, 2004 and again as WO 2005/059525A1 (in view of PCT/US2004/041600 claiming priority to this application) on June 30, 2005.

**Allowable Subject Matter**

17. Claims 10-12, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: although alternately positioned filters are known, for example, in displays, a combination with a fluorescent detection system is not suggested; a lattice-form filter coupling in a filter assembly is not suggested.

**Conclusion**

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ch

*Constantine Hannaher*  
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Primary Examiner